

## **WHAT IS CLAIMED IS:**

1. A thermostat failure diagnosis method comprising the steps of:  
determining a standard time period in response to an intake air quantity and a cooling water temperature;  
counting down until the standard time period reaches zero;  
detecting a cooling water temperature and storing same when the standard time period reaches zero;  
correcting a target temperature accounting for the influence of a head wind; and  
comparing the stored cooling water temperature with the corrected target temperature to determine whether or not a thermostat has failed.
2. The method as defined in claim 1 further comprising a step of determining whether a thermostat failure diagnosis condition is met and carrying out the thermostat failure diagnosis only if the condition is met, wherein the thermostat failure diagnosis condition is previously defined using a cooling water temperature during the start of the engine, an intake air temperature during the start of the engine, and the intake air quantity as factors.
3. The method as defined in claim 1, wherein the countdown of the standard time period is performed by one step for every predetermined amount of time.
4. The method as defined in claim 1, wherein:  
the step of determining the standard time period further comprises the step of determining the standard time period in response to the intake air quantity and cooling water temperature if the thermostat failure diagnosis condition is met; and  
the step of counting down further comprises the step of re-adjusting the standard time period in response to the changed intake air quantity and the cooling

water temperature thereof when the intake air quantity is changed during the countdown.

5. The method as defined in claim 4, wherein the standard time period re-adjusting step further comprises a step of comparing the standard time period remaining after countdown, just before the intake air quantity is changed, with a standard time period determined in response to the changed intake air quantity and cooling water temperature thereof to determine a larger time as a new standard time period and to continue the counting down step using the new standard time period..

6. The method as defined in claim 1, wherein the correcting step further comprises the steps of:

calculating an average vehicle speed;

determining a correction constant in response to intake air temperature and the average vehicle speed; and

multiplying the correction constant by the target temperature to determine the corrected target temperature.

7. The method as defined in claim 6, wherein the correction constant is stored in a map table such that the correction constant is based on the intake air temperature and the average vehicle speed.

8. The method as defined in claim 1, wherein the thermostat failure diagnosing step further comprises a step of determining that the thermostat has failed if the stored cooling water temperature is less than the corrected target temperature, and determining

that the thermostat is functioning properly if the stored cooling water temperature is above the corrected target temperature.